

# L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> Document Styles for the University of Southampton File version v2.2, dated 2019/03/12

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## 1 Quickstart

This guide assumes you have installed MiKTeX or TeX live distributions. It also requires having the program “make” for producing the templates again.

The folder labelled tex-mf should be installed in your local tex files source or whatever your tex distro uses.

The Templates have been built for the Department of Electronics and Computer Science in the Faculty of Engineering and Physical Science at the University of Southampton.

The basic settings for University, Faculty and School are explained in Section ??

If a user only wishes to change the file for their thesis it is probably easier to navigate to the class file labeled uosthesis and change the department and faculty naming there. This will be located in the subdirectory where you unzipped the files under tex/latex/uosdocs/

## 2 Description

These L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> document classes are designed to produce thesis, mini-thesis, progress, project, report, GDP report and GDP summary report documents which conformed to the University of Southampton guidelines of April 2001. They were updated in Jan 2019 to conform to changes in those guidelines. Specifically copy-right and authorship declaration changes. They are based on the document class `book`, but modify some of its layout decisions. An article class is also provided which is based on the document class `article`.

## 3 The DOCSTRIP modules

The following modules are used in the implementation to direct DOCSTRIP when generating the external files:

thesis	produce the <code>uosthesis</code> document class
minithesis	produce the <code>uosminithesis</code> document class
progress	produce the <code>uosprogress</code> document class
project	produce the <code>uosproject</code> document class
report	produce the <code>uosreport</code> document class
article	produce the <code>uosarticle</code> document class
gdp	produce the <code>uosgdp</code> document class
gdpsummary	produce the <code>uosgdpsummary</code> document class
testthesis	produce an example thesis
testminithesis	produce an example minithesis
testprogress	produce an example progress
testproject	produce an example project
testreport	produce an example report
testarticle	produce an example article
testgdp	produce an example GDP report
testgdpsummary	produce an example GDP summary report
introduction	produce an example introduction chapter
conclusions	produce an example conclusions chapter
appendix	produce an example appendix chapter
figure	produce an example figure file
definitions	produce an example definitions file
references	produce an example references file
bst	produce a bibliography style file
driver	produce a documentation driver file

## 4 Implementation

The checksum is to determine if there has been a truncation in the file during transmission over a network

The class has a custom option to define what colours should be used for links. This option defines `sotoncolour` to use UoS palette colours. Colour Code taken from <http://edshare.soton.ac.uk/10481>

All options are passed on to the `book` or `article` class.

```
1 <{*thesis | minithesis | progress | project | report | article | gdp | gdpsummary}>
```

```
\baseclass
```

```
2 %% ----- Class/Formating Adjustment -----
3 %% Adjust the book class to match the requirements
4 %% Set spacing, line and paragraph options
5 %% Set LaTeX builder options (work break penalties etc.)
6 <{*thesis | minithesis | progress | project | report | gdp | gdpsummary}>
7 \def\baseclass{book}
8 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
9 <{*article}>
10 \def\baseclass{article}
11 </article>

12 \RequirePackage{xcolor}
13 \colorlet{linkBlue}{blue}
14 \colorlet{custGray}{gray}
15 \colorlet{chapRed}{red}
```

```

16 \DeclareOption{sotoncolour}{
17 \definecolor{sotonMarineBlue}{RGB}{1,67,89} % Soton marine blue (P 7469C)
18 \definecolor{sotonGrey}{RGB}{153,153,166} % Soton grey (P 443C)
19 \definecolor{sotonRed}{RGB}{171,18,16} % Soton Red (P 484C)
20 \colorlet{linkBlue}{sotonMarineBlue}
21 \colorlet{custGray}{sotonGrey}
22 \colorlet{chapRed}{sotonRed}
23 }
24 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{\baseclass}}

```

`\@checkoptions` Before we can process the options we must deal with a small problem. That is, we want to change the default options of the `book` or `article` class to `a4paper` and `11pt` or `12pt` but the macro `\ProcessOptions` used by the `book` or `article` class processes the options in the order specified in the file. Because `a4paper` is the first of the paper sizing options it will be overridden by any user defined option. But the same is not true of the font size option `11pt` or `12pt`. To remedy this we define a macro `\@checkoptions{<default>}{<option-list>}` which checks to see if any options in `<option-list>` have been specified and if not adds `<default>` to the option list.

```

25 \def\@checkoptions#1#2{
26   \edef\@curroptions{\@optionlist{\@currname.\@current}}
27   \@tempswafalse
28   \@tfor\@this:=#2\do{
29     \@expandtwoargs\in@{,\@this,}{,\@curroptions,}
30     \ifin@ \@tempswatrue \@break@tfor \fi
31     \let\@this\@empty
32     \if@tempswa \else \PassOptionsToClass{#1}{\baseclass}\fi
33 }

```

With this macro at our disposal we can continue to process the options

```

34 (*thesis | minithesis | progress | report | article | gdp | gdpsummary)
35 \@checkoptions{11pt}{10pt}{11pt}{12pt}
36 \thesis | minithesis | progress | report | article | gdp | gdpsummary)
37 (*project)
38 \@checkoptions{12pt}{10pt}{11pt}{12pt}
39 \project)
40 \PassOptionsToClass{a4paper}{\baseclass}
41 \ProcessOptions\relax

```

and load the `book` or `article` document class with `A4` as the default paper size.

```

42 \LoadClass{\baseclass}

```

## 4.1 Banner

`\bhrule` Provide a function to produce a banner on the output making the location of the current section simpler.

```

43 \newcommand\bhrule{\typeout{-----}}
44 \newcommand\btypeout[1]{\bhrule\typeout{\space #1}\bhrule}

```

## 4.2 Date

`\today` This macro uses the  $\TeX$  primitives `\month`, `\day` and `\year` to provide the date of the  $\LaTeX$ -run in a suitable format.

```
45 <*thesis>
46 \def\today{\ifcase\month\or
47   January\or February\or March\or April\or May\or June\or
48   July\or August\or September\or October\or November\or December\fi
49   \space \number\year}
50 </thesis>
```

## 5 Document Layout

### 5.1 Font

```
51 %% \usepackage[T1]{fontspec}
52 %   Set font for copyright statement body text
53 \usepackage[defaultsans]{droidsans}
54 %   Set a particular style of font for the thesis. A font that has smallcaps
55 \usepackage{mathpazo}
56 %%\usepackage[T1]{fontenc} %This may not be necessary for english only text
```

### 5.2 Spacing

Load the `setspace` package so that spacing can easily be set. The text in all three styles is set to one and a half spacing, paragraphs not indented, and a newline between paragraphs.

```
57 \usepackage{setspace}
58 <thesis | minithesis | progress | project | report | gdp | gdpsummary>\onehalfspacing
59 <article>\singlespacing
60 \setlength{\parindent}{0pt}
61 \setlength{\parskip}{2.0ex plus0.5ex minus0.2ex}
```

### 5.3 Margins

Load the `vmargin` package to setup the page dimensions.

```
62 \usepackage{vmargin}
63 <*thesis | minithesis | progress | project | report | gdp | gdpsummary>
64 \setmarginsrb          { 1.5in} % left margin
65                       { 0.6in} % top margin
66                       { 1.0in} % right margin
67                       { 0.8in} % bottom margin
68                       { 20pt}  % head height
69                       {0.25in} % head sep
70                       { 9pt}   % foot height
71                       { 0.3in} % foot sep
72 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
73 <*article>
74 \setmarginsrb          { 0.8in} % left margin
75                       { 0.6in} % top margin
76                       { 0.8in} % right margin
77                       { 0.8in} % bottom margin
78                       { 20pt}  % head height
```

```

79 {0.25in} % head sep
80 { 9pt} % foot height
81 { 0.3in} % foot sep
82 </article>

```

## 5.4 Breaks

Control how pages and lines are broken.

```

83 \raggedbottom
84 \setlength{\topskip}{1\topskip \@plus 5\p@}
85 \doublehyphendemerits=10000 % No consecutive line hyphens.
86 \brokenpenalty=10000 % No broken words across columns/pages.
87 \widowpenalty=9999 % Almost no widows at bottom of page.
88 \clubpenalty=9999 % Almost no orphans at top of page.
89 \interfootnotelinepenalty=9999 % Almost never break footnotes.

```

## 5.5 Fancy Page Headers

Setup the the default fancy page headers with an underlined header containing chapter, name and page number.

```

90 \usepackage{fancyhdr}
91 % Help from https://texblog.org/2007/11/07/headerfooter-in-latex-with-fancyhdr/#comment-4783
92 \fancyhead[LE]{\textrm\thepage}
93 \fancyhead[LO]{\fancyplain{}{\textsl{\rightmark}}}}
94 \fancyhead[RE]{\fancyplain{}{\textsl{\leftmark}}}}
95 \fancyhead[RO]{\textrm\thepage}
96 \head{}\lfoot{}\rfoot{}\cfoot{}
97 \pagestyle{fancy}
98 \fancypagestyle{plain}{
99   \fancyhf{}
100   \fancyhead[OR]{\thepage}
101   \renewcommand{\headrulewidth}{0pt}
102 }

```

`\chaptermark` Redefine `chaptermark` and `sectionmark` to set up the correct header name and  
`\sectionmark` produce a banner on the output making the location of messages simpler.  
`\subsectionmark` The `\btypeout` command is for console logging where chapters start  
`\chapapp` expands to "Chapter" or "Appendix"

```

103 <thesis | minithesis | progress | project | report | gdp>
104 \renewcommand{\chaptermark}[1]{\btypeout{\thechapter.\space #1}\markboth{\chaptername\ \thechapter}{\thepage}}
105 \renewcommand{\sectionmark}[1]{\markright{\thesection.\hspace{1em}#1}}
106 \renewcommand{\subsectionmark}[1]{}
107 </thesis | minithesis | progress | project | report | gdp>
108 <*article>
109 \renewcommand{\sectionmark}[1]{\btypeout{\thesection\hspace{1em}}\markboth{}{\thesection.\hspace{1em}#1}}
110 \renewcommand{\subsectionmark}[1]{}
111 \renewcommand{\subsubsectionmark}[1]{}
112 </article>
113 \gdpsummary\markboth{GDP Summary Report}{GDP Summary Report}

```

`\cleardoublepage` Redefine `cleardoublepage` to remove headers from blank pages in twosided documents.

```

114 \def\cleardoublepage{\clearpage\if@twoside \ifodd\c@page\else
115 \hbox{}
116 \thispagestyle{empty}
117 \newpage
118 \if@twocolumn\hbox{}\newpage\fi\fi\fi}

```

`\cleartoeven` Define `cleartoeven` to remove headers from blank pages and force to even page for appendix or index.

```

119 \def\cleartoeven{\clearpage\if@twoside \ifodd\c@page
120 \hbox{}
121 \thispagestyle{empty}
122 \newpage
123 \if@twocolumn\hbox{}\newpage\fi\fi\fi}

```

## 5.6 Mathematics

Load the `amsmath` packages, so we can do some serious math, and setup the theorem environments.

```

124 %% ----- Figure/Table/Equation/Listing Styling -----
125 %% Set the styling for non text elements of the document
126 \usepackage{amsmath,amsfonts,amssymb,amscd,amsthm,xspace}
127 \theoremstyle{plain}
128 \newtheorem{example}{Example}[chapter]
129 \newtheorem{theorem}{Theorem}[chapter]
130 \newtheorem{lemma}{Lemma}[chapter]
131 \newtheorem{proposition}{Proposition}[chapter]
132 \newtheorem{axiom}{Axiom}[chapter]
133 \newtheorem{definition}{Definition}[chapter]
134 \newtheorem{remark}{Remark}[chapter]
135 \newtheorem{corollary}{Corollary}[chapter]
136 \newtheorem{lemma}{Lemma}[chapter]
137 \newtheorem{proposition}{Proposition}[chapter]
138 \newtheorem{axiom}{Axiom}[chapter]
139 \newtheorem{definition}{Definition}[chapter]
140 \newtheorem{remark}{Remark}[chapter]
141 \newtheorem{corollary}{Corollary}[chapter]
142 \newtheorem{lemma}{Lemma}[chapter]
143 \newtheorem{proposition}{Proposition}[chapter]

```

## 5.7 Captions

`\fref` Load the `caption` package to improve formatting of captions, and provide short  
`\tref` referencing commands.

```

\eref 144 \usepackage[justification=centerlast,font=small,labelfont=sc]{caption}
\cref 145 \setlength{\captionmargin}{20pt}
\sref 146 \newcommand{\fref}[1]{Figure~\ref{#1}}
\aref 147 \newcommand{\tref}[1]{Table~\ref{#1}}
148 \newcommand{\eref}[1]{Equation~\ref{#1}}
149 \newcommand{\cref}[1]{Chapter~\ref{#1}}
150 \newcommand{\sref}[1]{Section~\ref{#1}}
151 \newcommand{\aref}[1]{Appendix~\ref{#1}}

```

## 5.8 Float Placement

`\topfraction` Preventing figures from appearing on a page by themselves. L<sup>A</sup>T<sub>E</sub>X's figure placement algorithm is quite biased in favour of putting figures on a page by themselves, instead of on the top of a page with some text below it. Fortunately, the parameters of the algorithm can be changed. The main problem is that L<sup>A</sup>T<sub>E</sub>X per default only allows a part of the top of a text-page (70%) to contain figures, and requires at least 20% of a page to be text when text and figures share a page. These parameters should be set to more reasonable values, for example 85% and 10%.

```
152 \renewcommand{\topfraction}{0.85}
153 \renewcommand{\bottomfraction}{.85}
154 \renewcommand{\textfraction}{0.1}
155 \renewcommand{\dbltopfraction}{.85}
```

`\floatpagefraction` This helps, but sometimes L<sup>A</sup>T<sub>E</sub>X puts a figure on a page by itself, although it would fit perfectly well on the top of a page. This happens when the figure will not fit on the page where it was defined. L<sup>A</sup>T<sub>E</sub>X then attempts to put it on a figures-only page before it attempts to put it at the top of the next page. A page may contain figures alone if the figure(s) use at least half the page. To prevent half-empty pages this limit should probably be increased to around 75%.

```
156 \renewcommand{\floatpagefraction}{0.75}
157 \renewcommand{\dblfloatpagefraction}{.75}
```

Be careful not to make `floatpagefraction` larger than `topfraction`, then you risk to produce a figure that can neither go on the top of a text page, nor on a page by itself. If that happens, the figure and all later figures will be postponed until next time a `clearpage` is executed (typically at the end of a chapter or the end of the document). This will also happen if a figure is too large to fit on a page.

```
158 \setcounter{topnumber}{9}
159 \setcounter{bottomnumber}{9}
160 \setcounter{totalnumber}{20}
161 \setcounter{dbltopnumber}{9}
```

## 5.9 Graphics

Load the `graphicx` package, so we can include pictures easily. Load the `epstopdf`, so that eps files are automatically converted to pdf when pdfL<sup>A</sup>T<sub>E</sub>X is used. This requires a version of *epstopdf* to be installed on you system. You can find a windows version at

<http://www.ctan.org/tex-archive/support/epstopdf/epstopdf.exe>.

```
162 \usepackage{graphicx}
163 \usepackage{epstopdf}
```

## 5.10 Subfigures and subtables

Load the `subcaption` package, so we can include subfigures easily.

```
164 \usepackage[] {subcaption}
165 \usepackage{booktabs}
166 \usepackage{rotating}
```

## 5.11 Listings

Load the listings package, so we can include listings easily.

```

167 \usepackage{listings}
168 % \usepackage{lstpatch}
169 \lstset{captionpos=b,
170         frame=tb,
171         basicstyle=\scriptsize\ttfamily,
172         showstringspaces=false,
173         keepspaces=true}
174 \lstdefinestyle{matlab} {
175     language=Matlab,
176     keywordstyle=\color{blue},
177     commentstyle=\color[rgb]{0.13,0.55,0.13}\em,
178     stringstyle=\color[rgb]{0.7,0,0} }

```

## 5.12 Hyperlinks

Load the hyperref package to provide hyperlinks in pdf and dvi documents.

```

179 \usepackage[pdfpagemode={UseOutlines},bookmarks=true,bookmarksopen=true,
180     bookmarksopenlevel=0,bookmarksnumbered=true,hypertextnames=false,
181     colorlinks,linkcolor={linkBlue},citecolor={linkBlue},urlcolor={linkBlue},
182     pdfstartview={FitV},unicode,breaklinks=true]{hyperref}
183 \pdfstringdefDisableCommands{
184     \let\\\space
185 }

```

## 6 Internal Names

<p><code>\supervisor</code></p> <p><code>\examiner</code></p> <p><code>\degree</code></p> <p><code>\authors</code></p> <p><code>\addresses</code></p> <p><code>\university</code></p> <p><code>\UNIVERSITY</code></p> <p><code>\department</code></p> <p><code>\DEPARTMENT</code></p> <p><code>\group</code></p> <p><code>\GROUP</code></p> <p><code>\faculty</code></p> <p><code>\FACULTY</code></p> <p><code>\subject</code></p> <p><code>\keywords</code></p>	<p>The various elements of the documents are defined as control sequences to make it easy to customize this style for other parts of the University. When the command is run the other terms are defined by the args.</p> <p>The examiner and supervisor commands can be pluralised so that it can print "Supervisors:". This is with an optional argument. [s] which will add and "s" to the word "Supervisor"</p> <p>186 %% ----- Organisational Structure -----</p> <p>187 \newcommand*\supervisor[2] [] {\def\supname{#2}\def\supplural{#1}}</p> <p>188 \newcommand*\examiner[2] [] {\def\examname{#2}\def\examplural{#1}}</p> <p>189 \newcommand*\degree[1] {\def\degreename{#1}}</p> <p>190 \newcommand*\authors[1] {\def\authornames{#1}}</p> <p>191 \newcommand*\qualifications[1] {\def\qual{#1}}</p> <p>192 \newcommand*\addresses[1] {\def\addressnames{#1}}</p> <p>193 \newcommand*\doi[1] {\def\doicode{#1}}</p> <p>194 \newcommand*\volume[2] {\def\volno{#1}\def\volof{#2}}</p> <p>195 \newcommand*\orcidid[1] {\def\orcid{#1}}</p> <p>196 \newcommand*\university[1] {\def\univname{#1}}</p> <p>197 \newcommand*\UNIVERSITY[1] {\def\UNIVNAME{#1}}</p> <p>198 \newcommand*\department[1] {\def\deptname{#1}}</p> <p>199 \newcommand*\DEPARTMENT[1] {\def\DEPTNAME{#1}}</p> <p>200 \newcommand*\group[1] {\def\groupname{#1}}</p> <p>201 \newcommand*\GROUP[1] {\def\GROUPNAME{#1}}</p>
--	--



```

202 \newcommand*{\faculty}[1]{\def\facname{#1}}
203 \newcommand*{\FACULTY}[1]{\def\FACNAME{#1}}
204 \newcommand*{\subject}[1]{\def\subjectname{#1}}
205 \newcommand*{\keywords}[1]{\def\keywordnames{#1}}

\supname The internal names of the elements are set to defaults appropriate to the Depart-
\examname ment of Electronics and Computer Science.
\degreename By running these commands at the top of your tex file it will overwrite the
\authornames defaults.
\univname 206 %% ----- Organisational Structure -----
\UNIVNAME 207 \doi{}
\deptname 208 \supervisor {}
\DEPTNAME 209 \examiner {}
\groupname 210 \degree {}
\GROUPNAME 211 \authors {}
\facname 212 \qualifications{}
\FACNAME 213 \orcidid{}
\volume{}{}
\subjectname 214 \volume{}{}
\keywordnames 215 \university {\texorpdfstring{\href{http://www.southampton.ac.uk}
216 {University of Southampton}}
217 {University of Southampton}}
218 \UNIVERSITY {\MakeUppercase{\univname}}
219 \department {School of Electronics and Computer Science}
220 \DEPARTMENT {\MakeUppercase{\deptname}}
221 \group {Cyber Physical Systems Group}
222 \GROUP {\MakeUppercase{\groupname}}
223 \faculty {Faculty of Engineering and Physical Science}
224 \FACULTY {\MakeUppercase{\facname}}
225 \addresses {}
226 \subject {}
227 \keywords {}

```

## 7 Special Pages

### 7.1 Title Page

```

\maketitle Setup an appropriate title page and pdf strings if we are using pdfLATEX.
The
global
let
@title
@empty has been removed
Possibly the relax statement also needs to be removed
228 <{*thesis | minithesis | progress | project | report | gdp | gdpsummary}>
229 % Start by Adding meta data to the produced document
230 \usepackage{titling}
231 \AtBeginDocument{
232 \hypersetup{pdftitle={\thetitle}}
233 \hypersetup{pdfsubject={\subjectname}}
234 \hypersetup{pdfauthor={\authornames}}
235 \hypersetup{pdfkeywords={\keywordnames}}
236 }

```

```

237 %    Define the title page layout
238 \renewcommand\maketitle{
239   \btypeout{Title Page}
240   \thispagestyle{empty}
241   \begin{titlepage}
242     \let\footnotesize\small
243     \let\footnoterule\relax
244     \let \footnote \thanks
245     \setcounter{footnote}{0}
246     \null\vfil
247     \vskip 60\p@
248     \begin{center}
249       \setlength{\parskip}{0pt}
250       {\scshape\LARGE\textbf{\univname}\par}
251       %% TODO: Change all the descriptions to italic like the Thesis one
252 <thesis | minithesis | progress | project | gdp | gdpsummary>
253       \bigskip
254       {\large \facname \par}
255 </thesis | minithesis | progress | project | gdp | gdpsummary>
256 <*thesis | minithesis | progress | project>
257       {\large \deptname \par}
258 </thesis | minithesis | progress | project>
259       \vfill
260 <*minithesis>
261       {\large A mini-thesis submitted for transfer from}
262       {\large MPhil to PhD \par}
263 </minithesis>
264 <*progress>
265       {\large A progress report submitted for continuation}
266       {\large towards a PhD \par}
267 </progress>
268 <*project>
269       {\large A project report submitted for the}
270       {\large award of \par \degreename \par}
271 </project>
272 <*gdp>
273       {\large A group design project report submitted for}
274       {\large the award of \par \degreename \par}
275 </gdp>
276 <*gdpsummary>
277       {\large A group design project summary report submitted}
278       {\large for the award of \par \degreename \par}
279 </gdpsummary>
280 <*minithesis | progress | project | gdp | gdpsummary>
281       \vfill
282       {\normalsize Supervisor\supplural: \supname \par}
283       {\normalsize Examiner\examplural: \examname \par}
284       \vfill
285       \hspace{6mm}\parbox[t][51mm][s]{89mm}{
286         \center
287         \vfill
288         {\large \bf \@title \par}
289         \vfill
290         {\normalsize \textit{by} \textbf{authornames} \par}

```

```

291      \vfill
292      {\normalsize \@date \par}
293      \vfill
294  }
295  \parbox[t][95mm][s]{89mm}{
296  </minithesis | progress | project | gdp | gdpsummary>
297  <*thesis | report>
298      {\huge \bf \@title \par
299  }
300      \ifthenelse{equal{\doicode}{}}
301      {}
302      {\smallskip DOI: \href{http://orcid.org/\doicode}{\doicode}\par}
303      \ifthenelse{equal{\volno}{}}
304      {}
305      {\smallskip Volume \volno{} of \volof}
306      \vfill
307      {\LARGE \textit{by} \par}
308      \smallskip
309      {\LARGE \textbf{authornames}
310       \ifthenelse{equal{\quals}{}}
311       {}
312       {\par\LARGE
313        \quals}
314      \par}
315      \ifthenelse{equal{\orcid}{}}
316      {}
317      {\smallskip
318       ORCID: \href{http://orcid.org/\orcid}{\orcid}}
319
320      \vfill
321  <*thesis>
322      {\large \textit{A thesis for the degree of} \par}
323      {\large \textit{Doctor of Philosophy} \par}
324  </thesis>
325  <*report>      {\large \textit{Technical Report} \par}
326      \bigskip
327  \bigskip
328      {\large \facname \par}
329      {\large \deptname \par}
330  </report>
331      \bigskip
332      \bigskip
333      \bigskip
334      {\Large \@date \par}
335      \bigskip
336  </thesis | report>
337      \end{center}
338      \par
339      \@thanks
340      \vfil\null
341  \end{titlepage}
342  \setcounter{footnote}{0}%
343  \global\let\thanks\relax
344  \global\let\maketitle\relax

```

```

345 \global\let\@thanks\@empty
346 \global\let\@author\@empty
347 \global\let\@date\@empty
348 \global\let\title\relax
349 \global\let\author\relax
350 \global\let\date\relax
351 \global\let\and\relax
352 \cleardoublepage
353 }
354 </thesis | minithesis | progress | project | report | gdp | gdpsummary>
355 <*article>
356 \if@titlepage
357 \renewcommand\maketitle{
358 \btypeout{Title Page}
359 \markboth{\authornames}{\@title}
360 \begin{titlepage}
361 \thispagestyle{empty}
362 \let\footnotesize\small
363 \let\footnoterule\relax
364 \let \footnote \thanks
365 \null\vfil
366 \vskip 60\p@
367 \begin{center}
368 {\LARGE \@title \par}
369 \vskip 3em
370 {\large \lineskip .75em
371 \begin{tabular}[t]{c} \authornames \end{tabular}
372 \par}
373 \vskip 1em
374 {\large \lineskip .5em
375 \begin{tabular}[t]{c} \addressnames \end{tabular}
376 \par}
377 \vskip 1.5em
378 {\large \@date \par}
379 \if\keywordnames
380 \else
381 \quotation
382 \vskip 1.5em
383 {\noindent \normalsize
384 \textbf{Keywords:}
385 \textit{\keywordnames}
386 \par}
387 \endquotation
388 \fi
389 \end{center}
390 \par
391 \@thanks
392 \vfil\null
393 \end{titlepage}
394 \setcounter{footnote}{0}
395 \global\let\thanks\relax
396 \global\let\maketitle\relax
397 \global\let\@maketitle\relax
398 \global\let\@thanks\@empty

```

```

399 \global\let\@author\@empty
400 \global\let\@date\@empty
401 \global\let\title\relax
402 \global\let\author\relax
403 \global\let\date\relax
404 \global\let\and\relax
405 }
406 \else
407 \renewcommand\maketitle{
408 \btypeout{Title Page}
409 \markboth{\authornames}{\@title}
410 \thispagestyle{empty}
411 \par
412 \begingroup
413 \renewcommand\thefootnote{\@fnsymbol\c@footnote}
414 \def\@makefnmark{
415 \rlap{\@textsuperscript{\normalfont\@thefnmark}}
416 }
417 \long\def\@makefntext##1{
418 \parindent 1em\noindent \hb@xt@1.8em
419 {\hss\@textsuperscript{\normalfont\@thefnmark}}##1
420 }
421 \if@twocolumn
422 \ifnum \col@number=\@ne
423 \maketitle
424 \else
425 \twocolumn[\maketitle]%
426 \fi
427 \else
428 \newpage
429 % Prevent figures from going at top of page.
430 \global\@topnum\z@
431 \maketitle
432 \fi
433 \thispagestyle{plain}\@thanks
434 \endgroup
435 \setcounter{footnote}{0}%
436 \global\let\thanks\relax
437 \global\let\maketitle\relax
438 \global\let\@maketitle\relax
439 \global\let\@thanks\@empty
440 \global\let\@author\@empty
441 \global\let\@date\@empty
442 \global\let\title\relax
443 \global\let\author\relax
444 \global\let\date\relax
445 \global\let\and\relax
446 }
447 \def\@maketitle{
448 \newpage
449 \null
450 \vskip 2em
451 \begin{center}
452 \let \footnote \thanks

```

```

453     {\LARGE \@title \par}
454     \vskip 1.5em
455     {\large \lineskip .5em
456       \begin{tabular}[t]{c} \authornames \end{tabular}
457     \par}
458     \vskip 0.7em
459     {\large \lineskip .5em
460       \begin{tabular}[t]{c} \addressnames \end{tabular}
461     \par}
462     \vskip 1em
463     {\large \@date}
464   \end{center}
465   \par
466   \vskip 1.5em
467 }
468 \fi
469 \</article>

```

## 7.2 Abstract Page

`\abstract` Setup an appropriate abstract page.

```

470 <{*thesis | minithesis | progress | project | report | gdp}>
471 \newenvironment{abstract}
472 {
473   \btypeout{Abstract Page}
474   \thispagestyle{empty}
475   \null\vfil
476   \begin{center}
477     \setlength{\parskip}{0pt}
478     {\textsc\normalsize \univname \par}
479     \bigskip
480     {\underline{Abstract} \par}
481     \bigskip
482     {\textsc\normalsize \facname \par}
483 <{*thesis | minithesis | progress | project | report}>
484     {\textsc\normalsize \deptname \par}
485 </thesis | minithesis | progress | project | report>
486     \bigskip
487 <{*thesis}>
488     {\normalsize \underline{Doctor of Philosophy}\par}
489 </thesis>
490 <{*minithesis}>
491     {\normalsize \underline{A mini-thesis submitted for transfer from MPhil to PhD}\par}
492 </minithesis>
493 <{*progress}>
494     {\normalsize \underline{A progress report submitted for continuation towards a PhD}\par}
495 </progress>
496 <{*project}>
497     {\normalsize \underline{A project report submitted for the award of \degreename}\par}
498 </project>
499 <{*gdp}>
500     {\normalsize \underline{A group design project report submitted for the award of \degreename}\par}
501 </gdp>

```

```

502 \bigskip
503 {\normalsize\bf \@title \par}
504 \medskip
505 {\normalsize by \authornames \par}
506 \bigskip
507 \end{center}
508 }
509 {
510 \vfil\vfil\vfil\null
511 \cleardoublepage
512 }
513 </thesis | minithesis | progress | project | report | gdp>
514 <*article>
515 \if@titlepage
516 \renewenvironment{abstract}{
517 \titlepage
518 \null\vfil
519 \@beginparpenalty\@lowpenalty
520 \begin{center}
521 \bfseries \abstractname
522 \@endparpenalty\@M
523 \end{center}
524 \begin{itshape}
525 \noindent
526 }
527 {
528 \par
529 \end{itshape}
530 \if\keywordnames
531 \else
532 \quote
533 \vskip 1.5em
534 {\noindent \normalsize
535 \textbf{Keywords:}
536 \textit{\keywordnames}}
537 \par}
538 \endquote
539 \fi
540 \vfil\null\endtitlepage
541 }
542 \else
543 \renewenvironment{abstract}{
544 \if@twocolumn
545 \section*{\abstractname}
546 \else
547 \small
548 \begin{center}
549 {\bfseries \abstractname\vspace{-.5em}\vspace{\z@}}
550 \end{center}
551 \quote
552 \fi
553 \begin{itshape}
554 }
555 {

```

```

556     \end{itshape}
557     \if\keywordnames
558     \else
559         \vskip 1.5em
560         {\noindent \normalsize
561             \textbf{Keywords:}
562             \textit{\keywordnames}
563         \par}
564     \fi
565     \if@twocolumn\else\endquote\fi
566 }
567 \fi
568 \</article>

```

## 7.3 Contents Pages

Possibly all of these pages should be redone but using the `tocloft` package to reduce complexity in this style file.

### 7.3.1 Add to Table of Contents

`\addtotoc` Get a better list of contents package

Ensures numbering for sub-subsections in the table of contents, and provide for 6 levels to appear in toc. Define `addtotoc` to enable adding elements to the toc at chapter level, using a dummy counter to fix bookmarks in pdfL<sup>A</sup>T<sub>E</sub>X.

```

569 \<thesis | minithesis | progress | project | report | gdp | article>
570 \usepackage[nottoc]{tocbibind} % Put the Lists, Glossary, Biblog and Idx in the conten
571 \addtocounter{secnumdepth}{1}
572 \setcounter{tocdepth}{6}
573 \newcounter{dummy}
574 \newcommand\addtotoc[1]{
575 \refstepcounter{dummy}
576 \<thesis | minithesis | progress | project | report | gdp>
577 \addcontentsline{toc}{chapter}{#1}}
578 \</thesis | minithesis | progress | project | report | gdp>
579 \<*article>
580 \addcontentsline{toc}{section}{#1}}
581 \</article>

```

### 7.3.2 Table of Contents

`\tableofcontents` Adjust line and paragraph spacing.

```

582 \renewcommand\tableofcontents{
583 \hypersetup{linkcolor=black}}
584 \btypeout{Table of Contents}
585 \begin{spacing}{1}{
586     \setlength{\parskip}{1pt}
587     \if@twocolumn
588         \@restonecoltrue\onecolumn
589     \else
590         \@restonecolfalse
591     \fi
592 \<thesis | minithesis | progress | project | report | gdp>

```



```

593     \chapter*{\contentsname
594 \>/thesis | minithesis | progress | project | report | gdp)
595 (*article)
596     \section*{\contentsname
597 \>/article)
598     \@mkboth{
599         \MakeUppercase\contentsname}{\MakeUppercase\contentsname}}
600     \@starttoc{toc}
601     \if@restonecol\twocolumn\fi
602 \>thesis | minithesis | progress | project | report | gdp)    \cleardoublepage
603 }\end{spacing}
604 }

```

### 7.3.3 List of Figures

\listoffigures Adjust line and paragraph spacing.

```

605 \renewcommand\listoffigures{
606 \addtotoc{\listfigurename}
607 \begin{spacing}{1}{
608     \setlength{\parskip}{1pt}
609     \if@twocolumn
610         \@restonecoltrue\onecolumn
611     \else
612         \@restonecolfalse
613     \fi
614 \>*thesis | minithesis | progress | project | report | gdp)
615     \chapter*{\listfigurename
616 \>/thesis | minithesis | progress | project | report | gdp)
617 (*article)
618     \section*{\listfigurename
619 \>/article)
620     \@mkboth{\MakeUppercase\listfigurename}
621         {\MakeUppercase\listfigurename}}
622     \@starttoc{lof}
623     \if@restonecol\twocolumn\fi
624 \>*thesis | minithesis | progress | project | report | gdp)
625     \cleardoublepage
626 \>/thesis | minithesis | progress | project | report | gdp)
627 }\end{spacing}
628 }

```

### 7.3.4 List of Tables

\listoftables Adjust line and paragraph spacing.

```

629 \renewcommand\listoftables{
630 \addtotoc{\listtablename}
631 \begin{spacing}{1}{
632     \setlength{\parskip}{1pt}
633     \if@twocolumn
634         \@restonecoltrue\onecolumn
635     \else
636         \@restonecolfalse
637     \fi

```

```

638 <*thesis | minithesis | progress | project | report | gdp>
639     \chapter*{\listtablename
640 </thesis | minithesis | progress | project | report | gdp>
641 <*article>
642     \section*{\listtablename
643 </article>
644     \@mkboth{
645         \MakeUppercase\listtablename}{\MakeUppercase\listtablename}}
646     \@starttoc{lot}
647     \if@restonecol\twocolumn\fi
648 <*thesis | minithesis | progress | project | report | gdp>
649     \cleardoublepage
650 </thesis | minithesis | progress | project | report | gdp>
651 } \end{spacing}
652 }

```

### 7.3.5 List of Symbols

`\listsymbolname` Provide a `listofsymbols` command to produce a list of symbols,

```

\listofsymbols 653 <*thesis | minithesis | progress | report | article>
654 \newcommand\listsymbolname{Definitions and Abbreviations}
655 </thesis | minithesis | progress | report | article>
656 <*project | gdp>
657 \newcommand\listsymbolname{List of Symbols}
658 </project | gdp>
659 \usepackage{longtable}
660 \newcommand\listofsymbols[2]{
661     \btypeout{\listsymbolname}
662     \addtotoc{\listsymbolname}
663 <*thesis | minithesis | progress | project | report | gdp>
664     \chapter*{\listsymbolname
665 </thesis | minithesis | progress | project | report | gdp>
666 <*article>
667     \section*{\listsymbolname
668 </article>
669     \@mkboth{
670         \MakeUppercase\listsymbolname}{\MakeUppercase\listsymbolname}}
671 \begin{longtable}[c]{#1#2\end{longtable}\par
672 <*thesis | minithesis | progress | project | report | gdp>
673     \cleardoublepage
674 </thesis | minithesis | progress | project | report | gdp>
675 }
676 </thesis | minithesis | progress | project | report | gdp | article>

```

### 7.3.6 List of Additional Material

`\addmaterialname` Provide a `listofaddmaterial` command to produce a list of additional material,  
`\listofaddmaterial` the name can be changed with `\addmaterialname{NewName}`  
`\addtolom` Material can be added by using `\addcontentsline{lom}{chapter}{Material Name}`

```

677 \newcommand\addmaterialname{List of Additional Material}
678 \newcommand\listofaddmaterial{
679 \addtotoc{\addmaterialname}
680 \begin{spacing}{1}{

```

```

681 \setlength{\parskip}{1pt}
682 \if@twocolumn
683 \@restonecoltrue\onecolumn
684 \else
685 \@restonecolfalse
686 \fi
687 <*thesis | minithesis | progress | project | report | gdp>
688 \chapter*{\addmaterialname
689 </thesis | minithesis | progress | project | report | gdp>
690 <*article>
691 \section*{\addmaterialname
692 </article>
693 \@mkboth{
694 \MakeUppercase\addmaterialname}\MakeUppercase\addmaterialname}}
695 \starttoc{lom}
696 \if@restonecol\twocolumn\fi
697 <*thesis | minithesis | progress | project | report | gdp>
698 \cleardoublepage
699 </thesis | minithesis | progress | project | report | gdp>
700 }\end{spacing}
701 }
702 \newcommand\addtolom[1]{%
703 \addtocontents{lom}{\protect\contentsline{chapter}{\protect\numberline{#1}}{}}
704 }

```

## 7.4 Declaration of Authorship

\authorshipdeclaration Taken from Modified Template by Lovell ??

TODO: Consider a separate dissertation class for non technical?

TODO: Provide extra argument for putting the date into the Declaration

TODO: make slightly different declarations for theses and projects

This Authorship macro takes one argument for the case of People who have published part of their thesis already (perhaps in a paper).

xifthen else package used for the isempty command

```

705 <*thesis | minithesis | progress | report | article>
706 \usepackage{xifthen}
707 \newcommand\authorshipdeclaration[1]{
708 \btypeout{Declaration of Authorship}
709 \addtotoc{Declaration of Authorship}
710 \thispagestyle{plain}
711 \null\vfil
712 \vskip 60\p@
713 \begin{center}{\Large\bf Declaration of Authorship \par}\end{center}
714 I declare that this thesis and the work presented in it is my own and has
715 been generated by me as the result of my own original research.
716
717 I confirm that:
718
719 \begin{enumerate}
720 \item This work was done wholly or mainly while in candidature for a research degree at this U
721 \item Where any part of this thesis has previously been submitted for a degree or any other q
722 \item Where I have consulted the published work of others, this is always clearly attributed;
723 \item Where I have quoted from the work of others, the source is always given. With the except

```

```

724 \item I have acknowledged all main sources of help;
725 \item Where the thesis is based on work done by myself jointly with others, I have made clear
726
727 \ifthenelse{\isempty{#1}}
728 {\item None of this work has been published before submission}
729 {\item Parts of this work have been published as: #1}
730 \end{enumerate}
731
732 \vspace{15.0mm}
733 \begin{minipage}[t]{0.7\textwidth}
734   Signed:.....
735 \end{minipage}%
736 \begin{minipage}[t]{0.3\textwidth}
737   Date:.....
738 \end{minipage}
739 \vfil\vfil\null
740 \cleardoublepage
741 }
742 </thesis | minithesis | progress | report | article>

```

## 7.5 Copyright Statement

`\copyrightDeclaration` This standard Copyright statement is to be included for a thesis submission to University of Southampton Digital Repository

```

743 (*thesis)
744 \usepackage[export]{adjustbox} % for Soton logo alignment
745 \newcommand\copyrightDeclaration[1]{
746
747 \btypeout{Copyright declaration}
748 \thispagestyle{plain}
749
750 \hspace{-1.5in}\hspace{2.5cm}\begin{minipage}{17cm}
751 \null\vfil
752 \includegraphics[width=6cm,right]{UoSLogo.png}
753
754 \vskip 60\p@
755 \begin{center}{\selectfont\huge
756 \textcolor{custGray}{University~of~Southampton~Research~Repository}}\par}
757 \end{center}
758 \vspace{1cm}
759
760 {\fontfamily{fds}\selectfont
761
762 \noindent Copyright \textcopyright~ and Moral Rights for this thesis and, where
763 applicable, any accompanying data are retained by the author and/or other
764 copyright owners. A copy can be downloaded for personal non-commercial research
765 or study, without prior permission or charge. This thesis and the accompanying
766 data cannot be reproduced or quoted extensively from without first obtaining
767 permission in writing from the copyright holder/s. The content of the thesis
768 and accompanying research data (where applicable) must not be changed in any
769 way or sold commercially in any format or medium without the formal permission
770 of the copyright holder/s.
771

```

```

772 \vspace{0.5cm}
773
774 When referring to this thesis and any accompanying data, full bibliographic
775 details must be given, e.g.
776
777 \vspace{0.5cm}
778
779 Thesis: Author (Year of Submission) "Full thesis title", University of
780 Southampton, name of the University Faculty or School or Department,
781 PhD Thesis, pagination.
782
783 \vspace{0.5cm}
784
785 Data: Author (Year) Title. URI [dataset]]
786 \end{minipage}
787 \vfil\vfil\null
788 \cleardoublepage
789 }
790
791 \usepackage{lastpage} % counts the full number of pages
792
793 </thesis>

```

## 7.6 Acknowledgements

`\acknowledgements` Thank someone!

```

794 \newcommand\acknowledgements[1]{
795 \btypeout{Acknowledgements}
796 \addtotoc{Acknowledgements}
797 <{*thesis | minithesis | progress | project | report | gdp}
798 \thispagestyle{plain}
799 \null\vfil
800 \vskip 60\p@
801 \begin{center}{\Large\bf Acknowledgements \par}\end{center}
802 {\normalsize #1}
803 \vfil\vfil\null
804 \cleardoublepage
805 </thesis | minithesis | progress | project | report | gdp}
806 <{*article}
807 \section*{Acknowledgements}
808 {\normalsize #1}
809 </article}
810 }

```

## 7.7 Dedicatory

`\dedicatory` Dedicate the document to someone!

```

811 \newcommand\dedicatory[1]{
812 \btypeout{Dedicatory}
813 <{*thesis | minithesis | progress | project | report | gdp}
814 \thispagestyle{plain}
815 \null\vfil
816 \vskip 60\p@

```

```

817 \begin{center}{\Large \sl #1}\end{center}
818 \vfil\null
819 \cleardoublepage
820 </thesis | minithesis | progress | project | report | gdp>
821 }

```

## 8 Parts

```

\frontmatter Define frontmatter,mainmatter,backmatter for the article class and rename the
\mainmatter bibliography to something that makes more sense. For other classes make the
\backmatter Appendix entry in the table of contents better and rename the references in a
\appendix slightly different way.

822 <*article>
823 \newcommand\frontmatter{ }
824 \newcommand\mainmatter{ }
825 \newcommand\bibname{References}
826 \newcommand\backmatter{}
827 </article>
828 <*thesis | minithesis | progress | project | report | gdp>
829 \renewcommand\bibname{References}
830 \let\oldappendix\appendix % Put full appendix name in ToC
831 \renewcommand\appendix{%
832   \oldappendix
833   \let\oldacl@pp=\addcontentsline
834   \def\addcontentsline##1##2##3{\oldacl@pp{##1}{##2}{\appendixname\space ##3}}
835 }
836 \let\oldbackmatter\backmatter
837 \def\backmatter{%
838   \oldbackmatter
839   \let\addcontentsline=\oldacl@pp
840 }
841 </thesis | minithesis | progress | project | report | gdp>

842 </thesis | minithesis | progress | project | report | article | gdp | gdpsummary>

```

## 9 Example Documents

```

843 <*testthesis>
844 \documentclass[sotoncolour]{uosthesis} % Use the Thesis Style with custom link colour
845 </testthesis>
846 <*testminithesis>
847 \documentclass[sotoncolour]{uosminithesis} % Use the minithesis Style with custom link colour
848 </testminithesis>
849 <*testprogress>
850 \documentclass[sotoncolour]{uosprogress} % Use the progress Style with custom link colour
851 </testprogress>
852 <*testproject>
853 \documentclass[sotoncolour]{uosproject} % Use the Project Style with custom link colour
854 </testproject>
855 <*testreport>
856 \documentclass[sotoncolour]{uosreport} % Use the Report Style with custom link colour
857 </testreport>

```

```

858 <*testarticle>
859 \documentclass[sotoncolour]{uosarticle}      % Use the Article Style with custom link colour
860 </testarticle>
861 <*testgdp>
862 \documentclass[sotoncolour]{uosgdp}          % Use the GDP Report Style with custom link colour
863 </testgdp>
864 <*testgdpsummary>
865 \documentclass[sotoncolour]{uosgdpsummary}    % Use the GDP Summary Report Style with custom link
866 </testgdpsummary>
867 <*testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
868 \graphicspath{{../Figures/}}                % Location of your graphics files
869 \usepackage[round]{natbib}                   % Use Natbib style for the refs.
870 <*testthesis | testminithesis | testproject | testreport | testgdp>
871 \usepackage{bibentry}                        % Use bibentry for prepublished works
872 \nobibliography*                             % Use bibentry for prepublished works
873 \usepackage{attrib}                          % Use the attrib package for quotations
874 </testthesis | testminithesis | testproject | testreport | testgdp>
875 \hypersetup{colorlinks=true}                 % Set to false for black/white printing
876 \input{Definitions}                          % Include your abbreviations
877 %% -----
878 %% -----THESIS/DOC INFORMATION -----
879 \department {School of [Insert school]}
880 \DEPARTMENT {\MakeUppercase{\deptname}}
881 \group      {[Group name]}
882 \GROUP      {\MakeUppercase{\groupname}}
883 \faculty    {Faculty of [Insert faculty]}
884 \FACULTY    {\MakeUppercase{\facname}}
885 \title      {An Investigation into \dots}
886 <*testthesis>
887 \authors    {Insert name, for example, Sarah Alison Watson} % Use of Soton Email unadvised, us
888 </testthesis>
889 <*testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
890 \authors    {\texorpdfstring
891              {\href{mailto:S.A.Watson@soton.ac.uk}{Name and email, for example, Sarah Alison W
892              {Name and email, for example, Sarah Alison Watson}
893              }
894 </testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
895 \addresses  {\groupname\\deptname\\univname}
896 \date       {\today}
897 <*testminithesis | testprogress | testproject | testgdp | testgdpsummary>
898 % \supervisor[s] {Mr Beavis and Mrs S Supervisor}
899 \supervisor {Mr Beavis}
900 % \examiner[s] {Dr Butthead and Dr A.N. Other}
901 \examiner   {Dr Butthead}
902 </testminithesis | testprogress | testproject | testgdp | testgdpsummary>
903 <*testproject>
904 \degree     {BEng Electronic Engineering}
905 </testproject>
906 <*testgdp | testgdpsummary>
907 \degree     {Master of Engineering}
908 </testgdp | testgdpsummary>
909 %% Optional Fields
910 <testthesis | testminithesis | testprogress> \qualifications{MEng PhD}
911 <*testthesis>

```

```

912 \orcidid{0000-0002-1825-0097}
913 \doi{10.1002/0470841559.ch1}
914 \volume{n}{m} %Optional Volume Numbering Volume n of m
915 \testthesis)
916 \subject {}
917 \keywords {}
918
919 \begin{document}
920 %% ----- FRONT MATTER ORGANISATION -----
921 (*testthesis)
922 \pagenumbering{gobble} % removes page number
923 \copyrightDeclaration{} % !!! Comment this line when printing the hardcopy !!!
924 \raggedright %% Set the style to Left justification, remove for fill justification
925 %% Must be done after copyrightDeclaration
926 \testthesis)
927 \frontmatter
928 \maketitle
929 \testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp|testgdpsummary)
930 (*testthesis|testminithesis|testprogress|testproject|testreport|testarticle|testgdp)
931 \begin{abstract}
932 This work is all about \dots
933 (*testthesis|testminithesis|testprogress)
934 There are broad instructions for this template entitled: How to use the University of Southampton
935
936 There is no prescribed font, you should use a font appropriate to your discipline. See Product
937 \testthesis|testminithesis|testprogress)
938 \end{abstract}
939 (*testthesis|testminithesis|testprogress|testproject|testreport|testgdp)
940 \tableofcontents
941 \listoffigures
942 \listoftables
943 %% The List of listings does not, by default, appear in the ToC, so....
944 \addtotoc{Listings}
945 \lstlistoflistings
946 \listofaddmaterial
947 \addtolom{Material Name e.g Map}
948 \addtolom{Material Name e.g CD}
949 \addtolom{Test Material}
950 (*testthesis|testminithesis|testproject|testreport|testgdp)
951 %% ----- AUTHORSHIP DECLARATION/ ACKNOW. / DEDICATORY -----
952 %% Either include citations like below (as many as required spaced with commas or 'and').
953 %% \bibentry command must be used here with prepublished papers
954 % https://www.stefaanlippens.net/bibentry/
955 \authorshipdeclaration{\bibentry{Gunn:2001:pdflatex}, \bibentry{Lovell:2011:updated} and \bibentry{...}}
956 %% Or state no citations like below
957 %% \authorshipdeclaration{}
958 %% -----
959 \acknowledgements{Thanks to no one.}
960 \dedicatory{To \dots}
961 \testthesis|testminithesis|testproject|testreport|testgdp)
962 %%Lightweight Definitions and Abbreviations see package:nomencl for alternative
963 %% Include if relevant to discipline
964 \listofsymbols{lll}{\$w\$ & The weight vector\$\$S\$ & If relevant to discipline}
965 \testthesis|testminithesis|testprogress|testproject|testreport|testgdp)

```



```

966 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp>
967 < *testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
968 \mainmatter
969 %% ----- MAIN MATTER (CONTENT) -----
970 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
971 < *testthesis | testminithesis | testprogress | testproject | testreport | testgdp>
972 \include{Introduction}
973 \include{Conclusions}
974 \begin{lstlisting}[caption=Without a title it doesn't appear in the table]
975 This is a test listing
976
977 It has several lines
978 That
979 say not much at all
980 \end{lstlisting}
981 \appendix
982 \include{AppendixA}
983 \backmatter
984 < *testthesis | testminithesis | testprogress>
985 \chapter{Glossary [if relevant]}
986 </testthesis | testminithesis | testprogress>
987 \bibliographystyle{plainnat}
988 \bibliography{UOS}
989 < *testthesis | testminithesis | testprogress>
990 \chapter{Bibliography}
991 To use bibliography as well as the references section use the \texttt{multibbl} package.
992 \chapter{Index [if relevant]}
993 </testthesis | testminithesis | testprogress>
994 </testthesis | testminithesis | testprogress | testproject | testreport | testgdp>
995 < *testgdpsummary>
996 \section*{Introduction}
997 \section*{Objectives}
998 \section*{Resources}
999 \section*{Constraints}
1000 \section*{Approaching the task}
1001 \section*{Team Organisation}
1002 \section*{Important Results}
1003 \section*{Conclusions}
1004 \section*{Recommendations}
1005 </testgdpsummary>
1006 < *introduction>
1007 \chapter{Introduction} \label{Chapter:Introduction}
1008 </introduction>
1009 < *testarticle>
1010 \section{Introduction} \label{Section:Introduction}
1011 </testarticle>
1012 < *introduction | testarticle>
1013 You probably found all the files from \cite{Longman:2019:templ},
1014 they were originally made from \cite{Gunn:2001:pdflatex}.
1015 Template specific instructions can be found at:
1016 \url{https://git.soton.ac.uk/el7g15/uos-latex-template-instructions}.
1017
1018 \tref{Table:tabex} illustrates the results of some arbitrary example work.
1019 \begin{table}[!htb]

```

```

1020 \centering
1021 \begin{tabular}{cc}
1022 \toprule
1023 \textbf{Training Error} & \textbf{Testing Error}\\
1024 \midrule
1025 0 &  $\infty$ \\
1026 \bottomrule
1027 \end{tabular}
1028 \caption{The Results}
1029 \label{Table:tabex}
1030 \end{table}
1031
1032 \fref{Figure:figex} shows why this is the case.
1033 \begin{figure}[!htb]
1034 \centering
1035 \includegraphics[width=8cm]{figure}
1036 \caption{A colourful picture.}
1037 \label{Figure:figex}
1038 \end{figure}
1039
1040 This page shows you a subfigure example in \fref{Figure:figsubex}.
1041 \begin{figure}[!htb]
1042 \centering
1043 \subcaptionbox{The left caption}{
1044 \includegraphics[width=4.2cm]{figure}
1045 \label{Figure:figsubex:left}
1046 }
1047 \subcaptionbox{The right caption}{
1048 \includegraphics[width=4.2cm]{figure}
1049 \label{Figure:figsubex:right}
1050 }
1051 \caption{A doubly colourful picture.}
1052 \label{Figure:figsubex}
1053 \end{figure}
1054 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1055
1056 \section{A Section of a chapter}
1057 Nulla molestie velit sed dui ullamcorper viverra. Fusce placerat vulputate lacus eu consequat.
1058
1059 \subsection{Some quotes}
1060
1061 Nam egestas felis euismod erat tincidunt ornare. Nulla hendrerit tempor purus ac consequat. Aliquam
1062 \begin{quote}
1063 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec rutrum sodales ligula, ac aliquam
1064 \end{quote}
1065
1066 Pellentesque sodales lobortis feugiat. Vivamus volutpat mauris id odio aliquam maximus sed sit
1067 \begin{quote}
1068 The \verb|\attrib| macro attributes block elements, for example when citing
1069 a reference after a block quotation.
1070 \attrib{\cite{attribpackage}}
1071 \end{quote}
1072
1073 Donec vitae massa nisi. Praesent sed sollicitudin urna. Suspendisse vitae cursus tortor. In egestas

```

```

1074 </introduction | testarticle>
1075 <*conclusions>
1076 \chapter{Conclusions} \label{Chapter: Conclusions}
1077 </conclusions>
1078 <*testarticle>
1079 %% -----
1080 \section{Conclusions} \label{Section: Conclusions}
1081 </testarticle>
1082 <*conclusions | testarticle>
1083 It works.
1084 </conclusions | testarticle>
1085 <*testarticle>
1086 \acknowledgements{Thanks to no one.}
1087 \backmatter
1088 \appendix
1089 \bibliographystyle{plainnat}
1090 \bibliography{UOS}
1091 </testarticle>
1092 <*appendix | testarticle>
1093 <*appendix>
1094 \chapter{Stuff} \label{Chapter:Stuff}
1095 </appendix>
1096 <*testarticle>
1097 %% -----
1098 \section{Stuff} \label{Section:Stuff}
1099 </testarticle>
1100 The following gets in the way of the text....
1101 </appendix | testarticle>
1102 <*testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>
1103 \end{document}
1104 %% -----
1105 </testthesis | testminithesis | testprogress | testproject | testreport | testarticle | testgdp | testgdpsummary>

```

## 9.1 Example Figure

```

1106 <*figure>
1107 %%BoundingBox: 0 150 600 650
1108 %%EndComments
1109 0.0 setlinewidth
1110 /length 0.1 def
1111 /width 0.02 def
1112 /hsvcircle {
1113   gsave
1114     /h 0.0 def
1115     0 4 360 {
1116       pop
1117       gsave
1118       0.5 0.0 translate
1119       newpath
1120       0.0 0.0 moveto
1121       length 0.0 lineto
1122       length width lineto
1123       0.0 width lineto
1124       closepath
1125       h 1.0 1.0 sethsbcolor

```

```

1126 fill
1127 grestore
1128 /h h 4 360 div add def
1129 4 rotate
1130 } for
1131 grestore
1132 } def
1133 0.0 setlinewidth
1134 0.0 setgray
1135 300 400 translate
1136 500 500 scale
1137 30 rotate
1138 1.0 0.7 scale
1139 -30 rotate
1140 hsvcircle
1141 0.8 0.8 scale
1142 hsvcircle
1143 0.8 0.8 scale
1144 hsvcircle
1145 0.8 0.8 scale
1146 hsvcircle
1147 0.8 0.8 scale
1148 hsvcircle
1149 0.8 0.8 scale
1150 hsvcircle
1151 0.8 0.8 scale
1152 hsvcircle
1153 showpage
1154 </figure>

```

## 9.2 Definitions File

```

1155 <*definitions>
1156 \newcommand{\BibTeX}{\rm B\kern-.05em{\sc i\kern-.025em b}\kern-.08em T\kern-.1667em\lower.7ex\kern-.05em X}
1157
1158 %% People
1159 \newcounter{address}
1160 \setcounter{address}{1}
1161 \renewcommand{\theaddress}{\textsuperscript{\fnsymbol{address}}}
1162 \newcommand{\address}[1]{\refstepcounter{address}\theaddress#1\\}
1163 \newcommand{\Name}[3]{\texorpdfstring{\href{mailto:#3}{#2}#1}{#2}\xspace}
1164 \newcommand{\SteveRGunn}[1]{\Name{#1}{Steve R. Gunn}{S.R.Gunn@ecs.soton.ac.uk}}
1165
1166 %% Dingbats
1167 \newcommand{\tick}{\ding{51}}
1168 \newcommand{\cross}{\ding{55}}
1169
1170 %% Calculus
1171 \newcommand{\pd}[2]{\ensuremath{\frac{\partial #1}{\partial #2}}\xspace}
1172 \newcommand{\fd}[2]{\ensuremath{\frac{d #1}{d #2}}\xspace}
1173 \newcommand{\dint}{\ensuremath{\int\!\!\!\int}\xspace}
1174 \newcommand{\tint}{\ensuremath{\int\!\!\!\int\!\!\!\int}\xspace}
1175
1176 %% Math Sets
1177 \newcommand{\Q}[1]{\ensuremath{\mathbb{#1}}\xspace}

```

```

1178 \newcommand{\R}{\mathbb{R}}
1179
1180 %% Matrix, Vector
1181 \newcommand{\V}[1]{\ensuremath{\boldsymbol{\#1}}\xspace}
1182 \newcommand{\M}[1]{\ensuremath{\boldsymbol{\#1}}\xspace}
1183 \newcommand{\0}{\mathbf{0}}
1184 \newcommand{\1}{\mathbf{1}}
1185 \newcommand{\I}{\mathbf{I}}
1186
1187 %% Math Functions
1188 \newcommand{\F}[1]{\ensuremath{\mathrm{\#1}}\xspace}
1189 \newcommand{\sgn}{\mathbf{sgn}}
1190 \newcommand{\tr}{\mathbf{tr}}
1191 \newcommand{\diag}{\mathbf{diag}}
1192
1193 %% Math Names
1194 \newcommand{\N}[1]{\ensuremath{\mathit{\#1}}\xspace}
1195
1196 %% Data
1197 \newcommand{\mc}[1]{\ensuremath{\mathcal{\#1}}\xspace}
1198 \newcommand{\Hyp}{\mc{H}}
1199 \newcommand{\D}{\mc{D}}
1200
1201 %% Kernel
1202 \newcommand{\K}{\mathbf{K}}
1203 \newcommand{\eins}{\texorpdfstring{\ensuremath{\epsilon}}{\text{epsilon}}-insensitive\xspace}
1204 \newcommand{\e}{\ensuremath{\epsilon}\xspace}
1205 \newcommand{\Bxi}{\ensuremath{\boldsymbol{\xi}}\xspace}
1206 \newcommand{\Kanova}{\ensuremath{\mathit{K}_{ANOVA}}\xspace}
1207 \newcommand{\Kspline}{\ensuremath{\mathit{K}_{spline}}\xspace}
1208
1209 %% Bayesian
1210 \newcommand{\MP}{\ensuremath{\mathit{\scriptscriptstyle M}\hspace{-1.5pt}P}\xspace}
1211 \newcommand{\ML}{\ensuremath{\mathit{\scriptscriptstyle M}\hspace{-1.5pt}L}\xspace}
1212 \newcommand{\Qw}{\ensuremath{Q_{\mathbf{w}}(\mathbf{w})}\xspace}
1213 \newcommand{\Qa}{\ensuremath{Q_{\mathbf{a}}(\mathbf{a})}\xspace}
1214 \newcommand{\Qb}{\ensuremath{Q_{\mathbf{b}}(\mathbf{b})}\xspace}
1215 \newcommand{\wMPab}{\ensuremath{w_{\mathbf{MP}|\mathbf{a},\mathbf{b}}}\xspace}
1216 \newcommand{\wMP}{\ensuremath{w_{\mathbf{MP}}}\xspace}
1217 \newcommand{\yMP}{\ensuremath{y_{\mathbf{MP}}}\xspace}
1218 \newcommand{\BaMP}{\ensuremath{\mathbf{a}_{\mathbf{MP}}}\xspace}
1219 \newcommand{\aMP}{\ensuremath{\alpha_{\mathbf{MP}}}\xspace}
1220 \newcommand{\bMP}{\ensuremath{\beta_{\mathbf{MP}}}\xspace}
1221 \newcommand{\Sab}{\ensuremath{M_{\Sigma}(\mathbf{a},\mathbf{b})}\xspace}
1222 \newcommand{\Ba}{\ensuremath{\boldsymbol{\alpha}}\xspace}
1223 \newcommand{\Bb}{\ensuremath{\boldsymbol{\beta}}\xspace}
1224 \newcommand{\Bm}{\ensuremath{\boldsymbol{\mu}}\xspace}
1225 \newcommand{\BL}{\ensuremath{\boldsymbol{\Lambda}}\xspace}
1226 \newcommand{\BPhi}{\ensuremath{\boldsymbol{\Phi}}\xspace}
1227 \newcommand{\SMP}{\ensuremath{M_{\Sigma}(\mathbf{MP})}\xspace}
1228
1229 \newcommand{\Pa}{\ensuremath{P(\alpha|\mathcal{H})}\xspace}
1230 \newcommand{\Pb}{\ensuremath{P(\beta|\mathcal{H})}\xspace}
1231 \newcommand{\Pab}{\ensuremath{P(\alpha,\beta|\mathcal{H})}\xspace}

```

```

1232 \newcommand{\Pw}{\ensuremath{P(\mathcal{W})}\xspace}
1233 \newcommand{\PD}{\ensuremath{P(\mathcal{D})}\xspace}
1234 \newcommand{\PwIa}{\ensuremath{P(\mathcal{W}|\alpha,\mathcal{H})}\xspace}
1235 \newcommand{\PDIwb}{\ensuremath{P(\mathcal{D}|\mathcal{W},\beta,\mathcal{H})}\xspace}
1236 \newcommand{\PDwab}{\ensuremath{P(\mathcal{D},\mathcal{W},\alpha,\beta|\mathcal{H})}\xspace}
1237 \newcommand{\PDIw}{\ensuremath{P(\mathcal{D}|\mathcal{W},\mathcal{H})}\xspace}
1238 \newcommand{\PwID}{\ensuremath{P(\mathcal{W}|\mathcal{D},\mathcal{H})}\xspace}
1239 \newcommand{\PwabID}{\ensuremath{P(\mathcal{W},\alpha,\beta|\mathcal{D},\mathcal{H})}\xspace}
1240
1241 \newcommand{\PanH}{\ensuremath{P(\alpha)}\xspace}
1242 \newcommand{\PbnH}{\ensuremath{P(\beta)}\xspace}
1243 \newcommand{\PabnH}{\ensuremath{P(\alpha,\beta)}\xspace}
1244 \newcommand{\PwnH}{\ensuremath{P(\mathcal{W})}\xspace}
1245 \newcommand{\PDnH}{\ensuremath{P(\mathcal{D})}\xspace}
1246 \newcommand{\PwIaH}{\ensuremath{P(\mathcal{W}|\alpha)}\xspace}
1247 \newcommand{\PDIwbH}{\ensuremath{P(\mathcal{D}|\mathcal{W},\beta)}\xspace}
1248 \newcommand{\PDwabnH}{\ensuremath{P(\mathcal{D},\mathcal{W},\beta,\mathcal{H})}\xspace}
1249 \newcommand{\PDIwnH}{\ensuremath{P(\mathcal{D}|\mathcal{W})}\xspace}
1250 \newcommand{\PwIDnH}{\ensuremath{P(\mathcal{W}|\mathcal{D})}\xspace}
1251 \newcommand{\PwabIDnH}{\ensuremath{P(\mathcal{W},\alpha,\beta|\mathcal{D})}\xspace}
1252
1253 \newcommand{\PDwBab}{\ensuremath{P(\mathcal{D},\mathcal{W},\beta,\mathcal{H})}\xspace}
1254 \newcommand{\PwIBa}{\ensuremath{P(\mathcal{W}|\beta,\mathcal{H})}\xspace}
1255 \newcommand{\PBab}{\ensuremath{P(\beta,\mathcal{H})}\xspace}
1256 \newcommand{\PwBabID}{\ensuremath{P(\mathcal{W},\beta,\mathcal{H})}\xspace}
1257
1258 \newcommand{\PBanH}{\ensuremath{P(\beta)}\xspace}
1259 \newcommand{\PwIBanH}{\ensuremath{P(\mathcal{W}|\beta)}\xspace}
1260
1261 %% Snakes
1262 \newcommand{\Esnake}{\ensuremath{\mathit{E}_{\text{snake}}}\xspace}
1263 \newcommand{\Eimage}{\ensuremath{\mathit{E}_{\text{image}}}\xspace}
1264 \newcommand{\Econt}{\ensuremath{\mathit{E}_{\text{cont}}}\xspace}
1265 \newcommand{\Ecurv}{\ensuremath{\mathit{E}_{\text{curv}}}\xspace}
1266 \newcommand{\Eint}{\ensuremath{\mathit{E}_{\text{int}}}\xspace}
1267 \newcommand{\Eext}{\ensuremath{\mathit{E}_{\text{ext}}}\xspace}
1268 \newcommand{\Eterm}{\ensuremath{\mathit{E}_{\text{term}}}\xspace}
1269 \newcommand{\Eline}{\ensuremath{\mathit{E}_{\text{line}}}\xspace}
1270 \newcommand{\Edge}{\ensuremath{\mathit{E}_{\text{edge}}}\xspace}
1271 \newcommand{\Econ}{\ensuremath{\mathit{E}_{\text{con}}}\xspace}
1272 \newcommand{\Eangle}{\ensuremath{\mathit{E}_{\text{angle}}}\xspace}
1273 \newcommand{\Elshape}{\ensuremath{\mathit{E}_{\text{lshape}}}\xspace}
1274 \newcommand{\Eedgedir}{\ensuremath{\mathit{E}_{\text{edgedir}}}\xspace}
1275 \newcommand{\Emodel}{\ensuremath{\mathit{E}_{\text{model}}}\xspace}
1276 \newcommand{\wte}{\ensuremath{\mathit{w}_{\text{term}}}\xspace}
1277 \newcommand{\wli}{\ensuremath{\mathit{w}_{\text{line}}}\xspace}
1278 \newcommand{\wed}{\ensuremath{\mathit{w}_{\text{edge}}}\xspace}
1279 \newcommand{\wco}{\ensuremath{\mathit{w}_{\text{con}}}\xspace}
1280
1281
1282 %% Environments
1283 \newcounter{alg}
1284 \newenvironment{algorithm}[1]
1285 {

```

```

1286 \stepcounter{alg}
1287 \begin{table}[htb]
1288 \centering
1289 \begin{tabular}[t]{l}
1290 \hline&\
1291 \multicolumn{2}{l}{\bf Algorithm \arabic{alg}: #1}\&\
1292 } {
1293 &\
1294 \hline
1295 \end{tabular}
1296 \end{table}
1297 }
1298 \end{definitions}

```

### 9.3 References File

```

1299 \begin{references}
1300 @MISC{Longman:2019:templ,
1301   author = {E. Longman},
1302   title = {{University of Southampton LaTeX documents}},
1303   year = {2019},
1304   NOTE = {"\url{https://library.soton.ac.uk/thesis/templates} and
1305           \url{https://git.soton.ac.uk/el7g15/uos-latex-template}"},
1306 }
1307 @MISC{Gunn:2001:pdflatex,
1308   author = {S.R. Gunn},
1309   title = {PDFLaTeX Instructions},
1310   year = {2001},
1311   url = {http://www.ecs.soton.ac.uk/~srg/softwaretools/document/}
1312 }
1313 @MISC{Lovell:2011:updated,
1314   author = {C. J. Lovell},
1315   title = {Updated templates},
1316   year = {2011}
1317 }
1318 @MISC{Gunn:2011:updated2,
1319   author = {S.R. Gunn and C. J. Lovell},
1320   title = {Updated templates reference 2},
1321   year = {2011}
1322 }
1323 @MISC{attribpackage,
1324   author = {Matt Swift},
1325   title = {The attrib LaTeX package
1326 attribution of block elements (Frankensteins hat)},
1327   year = {1999},
1328   url = {http://cs.brown.edu/about/system/managed/latex/doc/attrib.pdf}
1329 }
1330
1331 \end{references}

```

### 9.4 Bibliography Style File

This has now been changed to the ordinary plainnat as natbib caught up

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